

Ethology



V Semester B.Sc. Zoology – Core Course VII


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AN INTRODUCTION TO ETHOLOGY



DEFINITION

- SCIENTIFIC STUDY OF ANIMAL BEHAVIOUR
- *ethos* – CHARACTER; *logos* – STUDY
- CHARACTER STUDY
- ETHOLOGY COINED BY GEOFFREY SAINT HILLAIRE – 1859
- EXPERIMENTAL PSYCHOLOGY – JOHN B WATSON – BOOK - “BEHAVIOURISM”

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- The focus of ethology is on animal behaviour under natural conditions is opposed to behaviourism, which focuses on behavioural response studies in a laboratory setting.

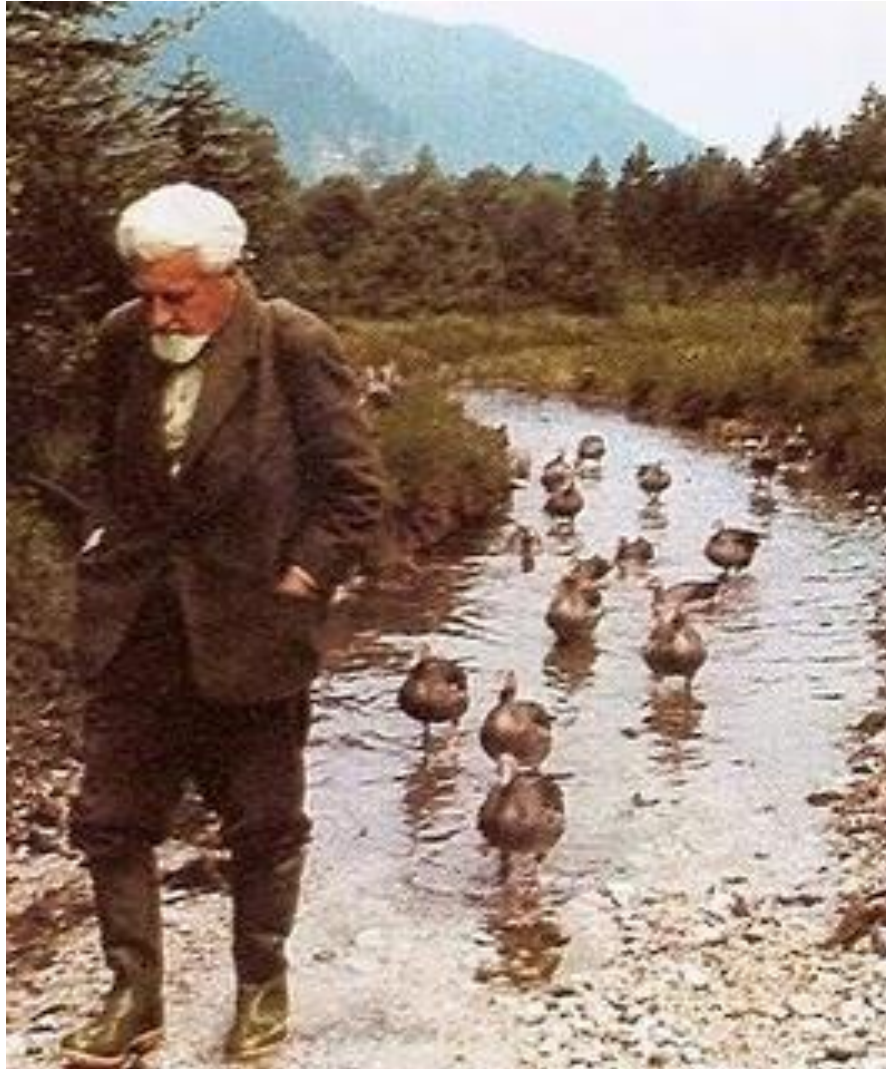
NOBEL PRIZE 1973

- KONARD LORENZ, NIKOLAAS TINBERGEN & KARL VON FRISCH
- DISCOVERIES ON THE ORGANIZATION AND ELICITATION OF INDIVIDUAL AND SOCIAL BEHAVIOUR PATTERNS
- FIRST NOBEL PRIZE IN ETHOLOGY

KONARD LORENZ

- Lorenz studied instinctive behavior in animals, especially in greylag geese and jackdaws. Working with geese, he rediscovered the principle of imprinting in the behavior of nidifugous birds (birds which leave nest shortly after the hatching)

KONARD LORENZ



NIKOLAAS TINBERGEN

- Nikolaas Tinbergen was a Dutch-born British biologist.
- His best known work developed into the response processes of fishes, gulls and wasps and in his 1932 doctoral thesis he showed how bee-killer wasps use geographical landmarks to orientate themselves.
- The response of individuals to environmental factors is, instead caused by an animal's genetics and imprinted impulses.

NIKOLAAS TINBERGEN



NIKOLAAS TINBERGEN

- Their work established the concept of a fixed-action pattern, a repeated, distinct set of movements or behaviors triggered by events in the animal's environment, a characteristic which Tinbergen and Lorenz held was shared by all members of a species, including the human species.
- He also worked as a maker of nature films, wrote children's books, and studied autistic behavior in children.

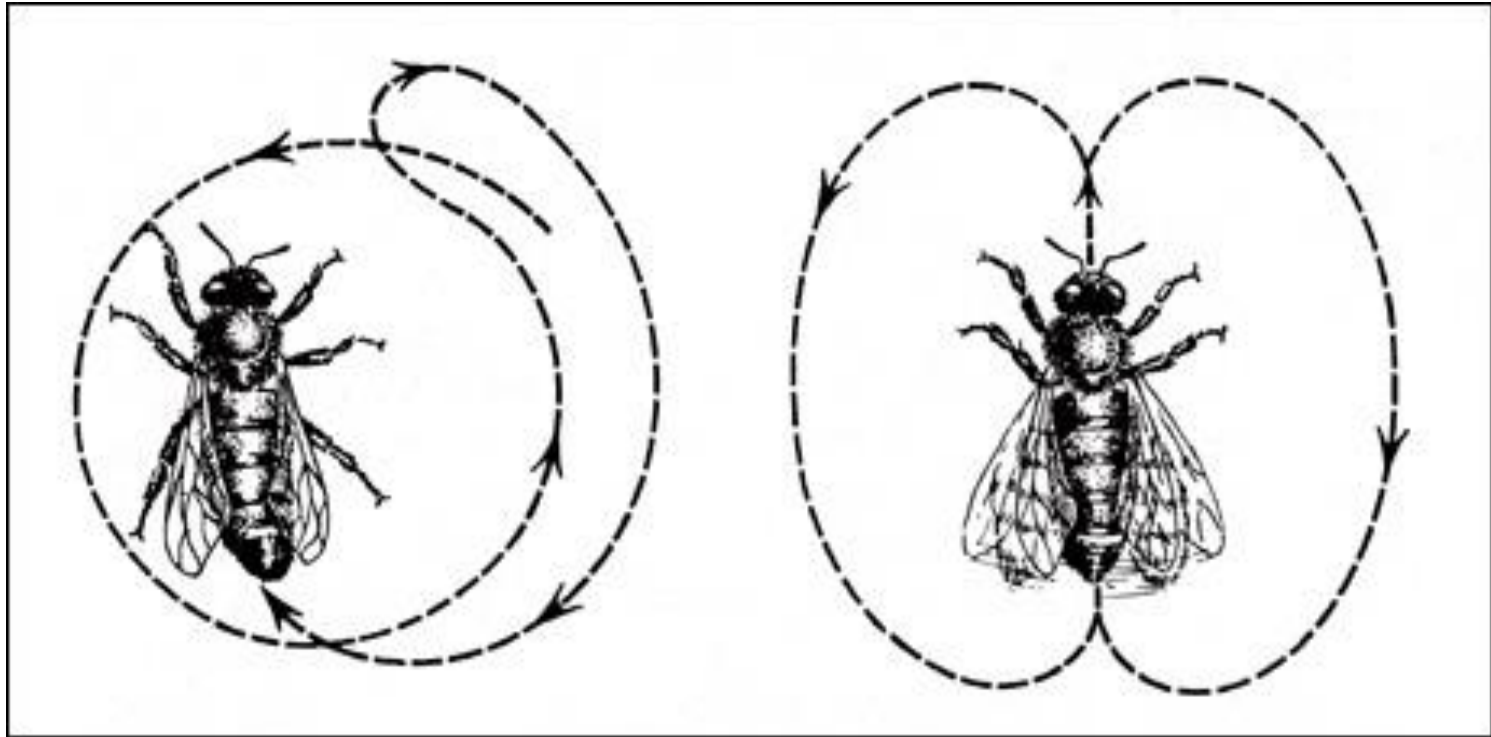
KARL VON FRISCH

- His work centered on investigations of the sensory perceptions of the honey bee and he was one of the first to translate the meaning of the waggle dance
- The “round dance” provides the information that there is a feeding place in the vicinity of the beehive at a distance between 50 and 100 meters, without the particular direction being given. By means of close contact among the bees it also supplies information about the type of food (blossom scent).

KARL VON FRISCH



WAG TAIL DANCE



KARL VON FRISCH

- The "waggle dance" is used to relay information about more distant food sources. The direction of the straight stretch contains the information about the direction of the food source, the angle between the straight stretch and the vertical being precisely the angle which the direction of flight has to the position of the sun.

APPROACHES OF BEHAVIOURAL STUDIES

- VITALISTIC APPROACH – STUDY IN RELATION TO NATURAL ENVIRONMENT
- MECHANISTIC APPROACH – EXPERIMENTAL APPROACH – UNDER CONTROLLED LABORATORY CONDITIONS
- ETHOLOGICAL APPROACH – RESPONSES IN LIGHT OF BEHAVIOUR ELICITING STIMULI AND NEUROLOGICAL PHENOMENA

ETHOGRAM

- ETHOGRAM IS A LIST THAT DESCRIBES THE KNOWN BEHAVIOUR PATTERNS OF THE SPECIES.
- THEY ALSO SPECIFY THE CONDITIONS IN WHICH INSTINCTIVE ACT OCCURRED
- ETHOGRAMS DEVELOPED FOR INSECTS, FISHES, BIRDS & MAMMALS

BRANCHES

- SOCIOBIOLOGY
- HUMAN ETHOLOGY
- BEHAVIOURAL PHYSIOLOGY
- 1. NEUROETHOLOGY
- 2. BEHAVIOURAL ENDOCRINOLOGY
- ECOETHOLOGY
- ETHOGENETICS OR BEHAVIOURAL GENETICS

THANK YOU

